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ABSTRACT

Focusing primarily on the role of educational leaders, this document analyzes what makes a difference in school learning. After a brief review of literature on the relationship between administrative leadership and student learning, aspects of the Far West Laboratory Instructional Leadership Model (the FWL model) used in the current analyses are described: (1) antecedents of leadership such as community contexts, instructional contexts, personal beliefs and experiences, gender, and personal characteristics; (2) principal leadership; and (3) consequences of principal leadership, such as instructional climate and instructional organization, that affect student outcomes. Next, this document reports on a secondary analysis of data collected from 98 elementary schools as part of the Tennessee School Improvement Incentives Program. Participant recruitment, data collection, and the variables studied, such as mission, instructional leadership, opportunity to learn, teacher expectations, and parental involvement, are explored. Study results are described in relation to each aspect of the FWL model. Last, implications of the FWL model for further study and for new conceptualizations of principal leadership are suggested. (55 references) (CLA)

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What Makes a Difference?
School Context, Principal Leadership, and Student Achievement

by

Philip Hallinger, Leonard Bickman
and Ken Davis
Vanderbilt University

Occasional Paper No. 3

June 1990

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1. *Re-Thinking School Leadership: An Agenda for Research and Reform* by Lee G. Bolman, Susan Moore Johnson, Jerome T. Murphy, and Carol H. Weiss; Harvard University (February 1990)

   This paper presents a basic model of the relationship between leadership, situation, and outcomes. Personal characteristics of leaders and the situation in which leaders find themselves both influence what leaders do, which in turn influences the kinds of outcomes that they produce. Embedded in the model are three questions: "What is good school leadership?" "How does good school leadership come about?" and "What will good school leadership mean in the future?" Systematic ways of approaching these questions are also presented.

2. *Preparing School Administrators for the Twenty-First Century: The Reform Agenda* by Joseph Murphy; Vanderbilt University (May 1990)

   In the second wave of school reform reports and studies of the 1980s, much attention has been directed to issues of school administration and leadership. Yet, to date, no comprehensive analysis of these calls for changes in school administration has been undertaken. The purpose of this paper is to provide such a review. The goals of the paper are threefold: (1) to explain the reasons for the calls for reform of school administration, (2) to review the major studies and reports on education reform from 1982 to 1988 and (3) to discuss educational administration reform issues that need further attention.

3. *What Makes a Difference? School Context, Principal Leadership, and Student Achievement* by Philip Hallinger, Leonard Bickman, and Ken Davis; Vanderbilt University (June 1990)

   This paper addresses the general question, what makes a difference in school learning? We report the results of a secondary analysis of data collected as part of the Tennessee School Improvement Incentives Project. We utilized the instructional leadership model developed by researchers at the Far West Laboratory for Educational Research and Development to guide our analyses. This conceptual model makes provision for analysis of principal leadership in relation to features of the school environment, school-level organization, and student outcomes. The paper focuses on the following research questions: (1) What antecedents appear to influence principal leadership behavior? (2) What impact does principal leadership have on the organization and its outcomes? (3) To what extent is the Far West Lab instructional leadership framework supported empirically by the data collected in this study?

4. *The Teaching Project at the Edward Devotion School: A Case Study of a Teacher-Initiated Restructuring Project* by Katherine C. Boles; Harvard University (September 1990)

   School districts around the country are in the process of initiating projects to restructure their schools. A small but growing number of these restructuring projects have been initiated by teachers, but as yet little has been written documenting the experience of classroom practitioners involved in such efforts. The purpose of this study is to add teachers' voices to the literature on restructuring. This project restructured a portion of a school and altered the work of a group of third and fourth grade teachers.

5. *Educational Reform in the 1980s: Explaining Some Surprising Success* by Joseph Murphy; Vanderbilt University (September 1990)

In this paper issues of success and failure of reform initiatives are discussed from both sides of the aisle. The paper begins with a review of the financial, political, and organizational factors which normally support the position that reform measures are likely to result in few substantive improvements. Next the argument is made that educational reform recommendations have been surprisingly successful, and some speculations as to the reasons for this unexpected outcome are presented.

6. *New Settings and Changing Norms for Principal Development* by Philip Hallinger; Vanderbilt University and Robert Wimpelberg; University of New Orleans (January 1991)

Recently analysts have identified a variety of features that distinguish emerging administrative training programs from traditional ones. The rapid, but non-systematic growth in organizations providing administrative development services during the 1980's led to considerable natural variation in programmatic content as well as in organizational processes. In particular, significant variations emerged in the operation of state sponsored leadership academies and local principals' centers. The purpose of this paper is to analyze variations in current approaches to educational leadership development. The paper addresses three questions: (1) What is the range of variation among emerging staff development programs for school leaders on dimensions of program content and organizational process? (2) What can we learn from the naturally occurring variations in administrative development? (3) What are the most likely and promising directions for administrative development programs in the next decade?

7. *Images of Leadership* by Lee G. Bolman; Harvard University and Terrence E. Deal; Vanderbilt University (January 1991)

This project has undertaken a major study of the "frames", or orientations that leaders use to guide their understanding of their work. The investigators have developed a set of survey instruments to measure four leadership orientations (structural, human resource, political, and symbolic), and collected data from leaders approach their task constituents in both education and the private sector. Their research results show that the four leadership orientations do capture significant elements of how leaders approach their task, and that those leadership variables are significantly associated with effectiveness. The results further show that the variables which predict effectiveness as a *manager* are different from those that predict effectiveness as a *leader*. In particular, structural and rational orientations are primarily predictive of manager effectiveness. This research was reported at the AERA meeting in April, 1990.

8. *Trouble in Paradise: Teacher Conflicts in Shared Decision Making* by Carol H. Weiss, Joseph Cambone and Alexander Wyeth; Harvard University (April 1991)

Many educators advocate teacher participation in school decision making as one strategy for improving schools. Through interviews with teachers and administrators in high schools that have adopted some version of shared decision making, the authors locate both advantages and disadvantages. Advantages center on great commitment and "ownership" of decisions. Disadvantages include, besides heavy time demands, the necessity for teachers to confront and negotiate with each other, a process that requires skills many teachers lack. There may also be conflicts with administrators, often because of unclear definitions of authority and responsibility. Suggestions are made for overcoming such problems.

9. *Restructuring Schools: Fourteen Elementary and Secondary Teachers' Persepctives on Reform* by Joseph Murphy, Carolyn M. Evertson and Mary L. Radnofsky; Vanderbilt University (May 1991)

Few efforts have been made to inject classroom teachers' voices into discussions on restructuring. In this article, we report on one exploratory study that begins to address this oversight. We interviewed 14 teachers from diverse roles about their views on the restructuring movement in general. We wanted to hear what they thought of the concept and to determine what effects they anticipated in restructuring schools. We also elicited their perceptions about what changes they would make in both the schools and classrooms if they were thrust into a school undergoing restructuring. We found that, while in some ways the views of these teachers were consistent with prevailing perspectives in the restructuring movement, in other cases, their preferences were at odds with the general body of literature on restructuring. We concluded that, while these teachers are optimistic about the possibilities of fundamental school reform, they remain skeptical about their ability to change the current educational system.

10. *The Effects of the Educational Reform Movement on Departments of Educational Leadership* by Joseph Murphy; Vanderbilt University (May 1991)

This paper reviews the types of revisions that preparation programs in educational leadership have begun to make in response to three related sets of pressures brought on by the reform movement of the 1980s: pressures bearing on school administrators from the larger reform agenda, i.e., improving education across the board; general critiques of and calls for improvement in educational leadership; and specific analyses and demands for change in administrator preparation programs. The results are based on questionnaires completed by 74 chairpersons in departments of educational leadership. The emerging picture is mixed. On the one hand, departments of educational administration have begun to respond to the pressures for change. In addition, for better or worse, discernable patterns in these revisions are generally consistent with the implicit demands for improvement that lace the critical reviews of the field and with the more explicit recommendations contained in the NPBEA and NCEEA reform reports. On the other hand, the response has been moderate (at best) in intensity and mixed in focus.

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WHAT MAKES A DIFFERENCE?

SCHOOL CONTEXT, PRINCIPAL LEADERSHIP, AND STUDENT ACHIEVEMENT

by
Philip Hallinger, Leonard Bickman, and Ken Davis

Do principals make a difference? Observers of schools, including parents, teachers and school administrators, have noted the seemingly obvious effects principals have on the learning climate, educational program, and workplace norms of schools. Though farther removed from school settings, the educational policy community is also generally inclined to believe that principal leadership is critical to the success or failure of educational programs and student learning. Thus, there is relatively little disagreement among practitioners or policymakers concerning the belief that principals have a discernable impact on the lives of teachers and students.

At the same time, the nature of that impact continues to be the subject of considerable debate, particularly among researchers and policymakers. This debate has been fueled by two factors. First, the question that often guides such discussions -- "Do principals make a difference?" -- is subject to varying interpretations. Second, research evidence regarding the principal's role in organizational effectiveness is ambiguous.

During the 1980's, the preoccupation among policymakers with issues of educational productivity cast the issue of principal impact largely in terms of effects on student learning. This perspective has led both policymakers and researchers to search for evidence that the leadership behavior of principals has had a

measurable effect on school outcome, student achievement or standardized tests. The paucity of large scale, well designed studies of principal impact, however, has forced researchers and policymakers to draw conclusions from studies that were never designed to address this issue (Rowan, Dwyer & Bossert, 1982; Murphy, 1988; Murphy, Hallinger & Mitman, 1983). Thus, principal leadership has been defined in narrow terms, divorced from the context in which it is exercised and attenuated from the multiple effects it may have on the school and its inhabitants. The context dependent nature of leadership is generally accepted in both private sector and educational organizations; yet, this feature of organizational leadership is conspicuously absent in much of the dialogue on the role of school principals. A notable exception to this trend is represented in the work of Bossert and his colleagues. In their review of the literature on organizational leadership and successful schooling, they conclude (Bossert, Rowan, Dwyer & Lee, 1982):

> Like earlier leadership studies . . . no single style of management seems appropriate for all schools . . . principals must find the style and structures most suited to their own local situation . . . a careful examination of quantitative studies of effective schools . . . suggests that certain principal behaviors have different effects in different organizational settings. Such findings confirm the contingency approach to organizational effectiveness found in current leadership theories (p. 38).

Contrary to this perspective, the implicit models of leadership that appear to guide educational policymakers generally overstate the influence of school administrators on organizational processes and outcomes, while underestimating the impact of environmental and organizational constraints on their leadership behavior

(Bridges, 1970, 1977; Leithwood, 1988; March 1978). This is the model of "the educational leader as the independent variable" in school leadership (Boyan, 1988; Bridges, 1977; Rowan, Dwyer & Bossert, 1982; Murphy, Hallinger & Mitman, 1983; Pitner, 1988). As suggested above, this phenomenon is illustrated in the conclusion that the principal is the "cause" of effective schools, despite the absence of research studies designed for causal inference (Rowan et al., 1982).

This paper addresses the general question, what makes a difference in school learning? We report the results of a secondary analysis of data collected as part of the Tennessee School Improvement Incentives Project. We utilized the instructional leadership model developed by researchers at the Far West Laboratory for Educational Research and Development (FWL) (Bossert et al., 1982) to guide our analysis. This conceptual model (referred to in this paper as the FWL model) makes provision for analysis of principal leadership in relation to features of the school environment, school-level organization, and student outcomes. The paper focuses on the following research questions:

1. What antecedents appear to influence principal leadership behavior?
2. What impact does principal leadership have on the organization and its outcomes?
3. To what extent is the Far West Lab instructional leadership framework supported empirically by the data collected in this study?

Conceptual Framework

Much of the literature on the relationship between administrative leadership and student learning consists either of case studies or cross sectional research designs employing overly simplified bivariate statistical models (Bridges, 1982; Murphy, 1988). Only two of the numerous large scale production function (i.e., input-output) studies conducted over the past 25 years even included principal attributes as correlates of student achievement (Glasman, 1984, p. 288; see Coleman & Hoffer, 1987; Eberts & Stone, 1988). Similarly, the effective schools studies conducted during the 1970's and 1980's were not designed as investigations of leadership and yielded ambiguous findings concerning the principal's leadership role (Hallinger & Murphy, 1985a; Purkey & Smith, 1983; Rowan et al., 1982). Constraints on the resources of doctoral students and other researchers investigating this domain of schooling have led to a preponderance of studies that are long on caveats and limited in their ability to contribute to the accumulation of knowledge.

Exceptions to this pattern do exist (e.g., Andrews, Soder & Jacoby, 1986; Cohen & Miller, 1980; Coleman & Hoffer, 1987; Eberts & Stone, 1988; Glasman, 1984; Hoy & Brown, 1986; Miskel & Owens, 1983; Ogawa & Hart, 1985; Rowan & Denk, 1983; Watson, 1985; Wellisch, MacQueen, Carriere & Duck, 1978). There are, however, surprisingly few reports of empirical investigations of the antecedents and impact of principal leadership using research designs of sufficient sophistication to shed light on these relationships (Bridges, 1982; Leithwood, 1988). Small sample

sizes, inadequate research designs, and atheoretical models abound in this field of investigation (Bridges, 1982; Murphy et al., 1983; Rowan et al., 1982). This has remained true during the 1980's, despite increased attention to the role of the school principal in school improvement.

Seminal work conducted by researchers in the Instructional Management Program at the Far West Lab during the early 1980's laid important groundwork for reconceptualizing the instructional leadership role of the school principal (Bossert et al., 1982). The FWL model of principal instructional leadership represents a framework in which the exercise of principal instructional leadership is contingent upon features of the school organization and its environment. Although the FWL framework stimulated much discussion among researchers about instructional leadership, relatively little empirical research has been done to test or extend the model since the early 1980's.

The FWL instructional leadership[1] framework locates principal leadership within both organizational and environmental contexts. A variety of exogenous variables influence the exercise of principal leadership (see figure 1). The principal shapes the school's instructional climate and instructional organization through interaction with teachers and students, as well as through development of school policies and norms. The FWL model assumes that the principal's impact on student learning takes place primarily through indirect means -- management of

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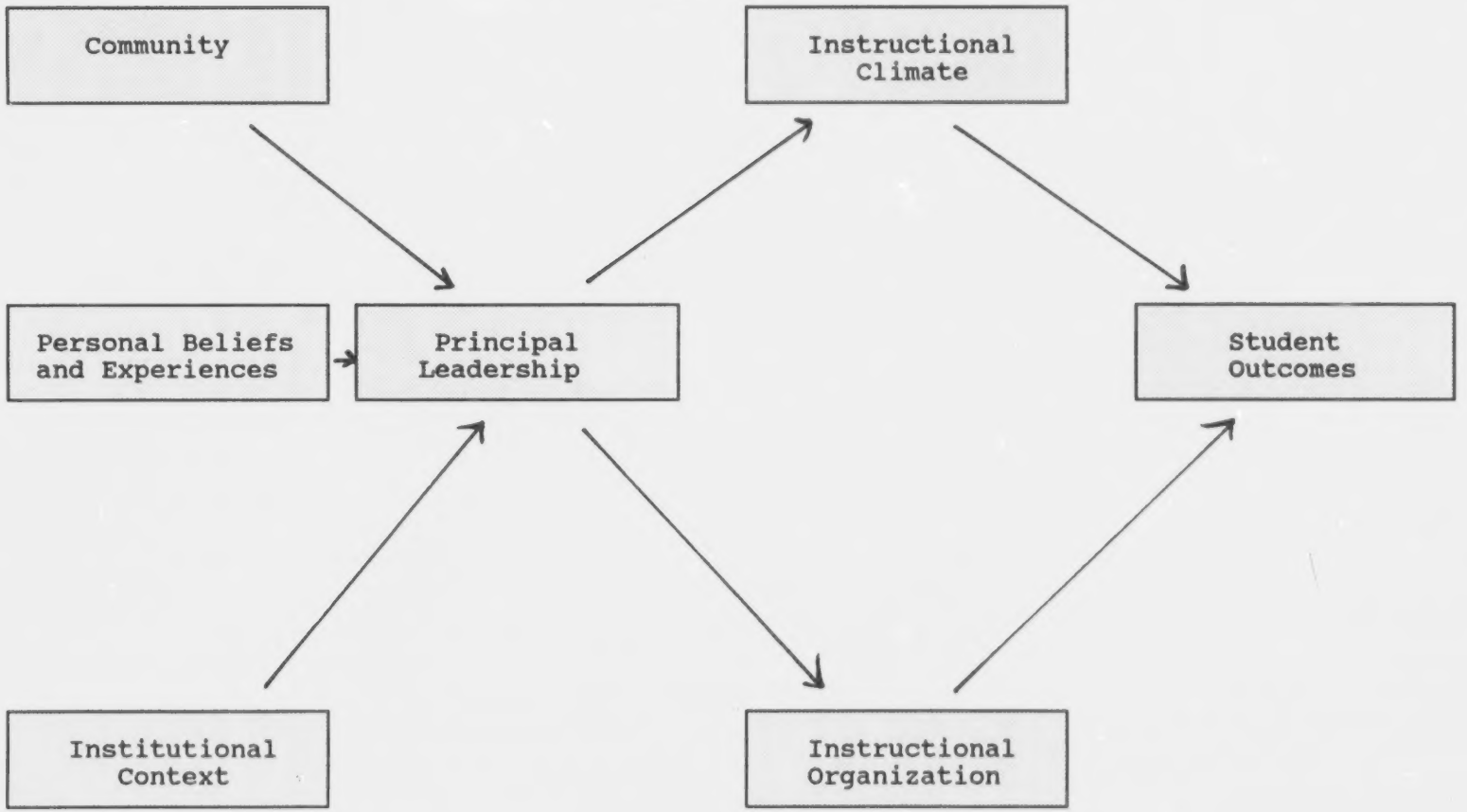
[1]Bossert and his colleagues refer to their model as a conceptualization of "instructional management." In this paper the terms instructional leadership and instructional management are used synonomously.

staff, climate building and organizational development.

This conceptualization is consistent both with prior research on principal leadership and the realities of the workplace as experienced by principals. Few studies of principal leadership conducted to date have been able to detect a direct impact on student learning despite the consensus among researchers, policymakers and practitioners that principals "make a difference" in the quality of schooling (see reviews conducted by Bossert et al., 1982; Bridges, 1982; Glasman, 1984, 1987; Hallinger & Murphy, 1985a; Leithwood, 1988; Leithwood & Montgomery, 1982; Murphy et al., 1983; Rowan et al., 1982).

Figure 1
Far West Lab Instructional Leadership Model



Antecedents of Leadership

The FWL model includes two sets of environmental variables that influence the principal's instructional leadership behavior: community contexts and institutional contexts. Features of the community such as homogeneity, socioeconomic status (SES) of families, parental expectations and involvement, and geographic location simultaneously constrain the principal and provide different opportunities for leadership (Crowson & Morris, 1985; Dwyer et al., 1983; Glasman, 1984; Hallinger & Murphy, 1985b, Miller & Sayer, 1986; Teddlie, Falkowski, Stringfield, Desselle & Garvue, 1985). In this paper, two measures of community context are included in the analysis: school level SES status and parental involvement.

Similarly, principals function in different institutional contexts. School and district size and complexity, the number and types of special programs, faculty experience and stability, school level, district support and expectations and other factors shape the principal's approach to instructional leadership (Crowson & Morris, 1985; Dwyer, 1986; Hallinger & Murphy, 1982; Kroeze, 1984; Peterson, Murphy & Hallinger, 1987). No measures of the principal's institutional context are included in the analyses presented in this paper.

Though not an environmental variable per se, an additional exogenous variable included in this model is represented by the beliefs and experiences of the principal. The work of Dwyer (1986) and Leithwood (1988) emphasizes the manner in which the principal's beliefs and prior experiences influence on-the-job

behavior. Studies further suggest that the number of years of prior teaching experience of a principal is positively associated with instructional leadership activity (Eberts & Stone, 1988; Glasman, 1984; Hallinger, 1983). Glasman (1984), Barth (1980), and Cuban (1988) have discussed the impact of principals' values on aspects of the instructional program, and consequently on teacher behavior and student learning.

An accumulating body of research also finds an association between principal leadership, as perceived by teachers, and principal gender (Adkison, 1981; Glasman, 1984; Gross & Trask, 1974; Hallinger, 1983). This research suggests that, on average, female elementary school principals are more actively involved in instructional management than their male counterparts. Leithwood (1988) contends that:

> the socialization experiences of men and women [are linked] with differences in career aspirations and view of the principal's role. Such experiences appear to cause more men to seek the principalship earlier in their careers (before age 30) and to aspire to the superintendency as a career move. Gender related socialization experiences also seemed to contribute to a relatively large proportion of women viewing themselves more as curriculum and instructional leaders; relatively larger proportions of men, in contrast viewed themselves as general managers (p. 26).

These observations suggest that certain personal characteristics of principals may correlate with each other as well as with principal actions. In this paper, principal gender and years of prior teaching experience are included as antecedent variables in the analyses.

Principal Leadership

The FWL model posits the above exogenous variables as directly influencing principal instructional leadership. The instructional leadership construct conceptualized by Bossert and his colleagues (1982) is expressed as follows:

> Effective principals create the conditions . . . [for successful schooling] by providing coherence to their schools' instructional programs, conceptualizing instructional goals, setting high academic standards, staying informed of policies and teachers' problems, making frequent classroom visits, creating incentives for learning, and maintaining student discipline (p. 35).

Case studies completed by Dwyer and his colleagues following the development of the FWL instructional management model found that principals exercise instructional leadership primarily through the development and exercise of "routine behaviors" (Dwyer, Lee, Rowan & Bossert, 1983). It is through these instructional leadership routines that principals shape the instructional climate and organization of the school, rather than through intensive, direct, ongoing intervention in the instructional process. Subsequent studies of principal leadership provide initial support for this perspective (Andrews, Soder & Jacoby, 1986; Estler, 1985; Hallinger & Murphy, 1985a; Leithwood, 1988; Leithwood & Stager, 1986).

Dwyer (1986) further contends that more effective principals are characterized by higher order thinking in their leadership role. That is, the instructional leadership practices of successful principals are consistent with their goals for students as well as with the needs and resources of the school and its environment. Leithwood (1988) draws a similar conclusion from separate data:

> [G]oals form a central part of the vision principals use to bring consistency to an otherwise unmanageably diverse set of demands. Effective principals act to influence a broad array of school factors with an extensive repertoire of strategies. Their priorities are expressed in their day-to-day actions; they are better attuned, than are typical principals, to behaviors that actually influence teachers (p. 23).

The measure of principal instructional leadership utilized in this study focused on representative behaviors and practices such as those identified by researchers at the Far West Lab in San Francisco (Dwyer et al., 1983), the Santa Clara County (CA) Office of Education (Hallinger, Murphy, Weil, Mitman, & Mesa, 1983; Hallinger & Murphy, 1985a), and the Connecticut State Education Department (Sirois & Villanova, 1982). Additional information on the operationalized scale is provided later in the paper.

Consequences of Principal Leadership

The FWL model suggests that principals exercise their leadership in instruction by influencing two variables that comprise the technical core of the school organization: instructional climate and instructional organization. Instructional climate is comprised of those facets of the school which shape the attitudes and behaviors of staff and students towards instruction and learning (Bossert et al., 1982; Hallinger & Murphy, 1985a). In this study, instructional climate was conceptualized as three related, but separately measured, constructs: school mission, student opportunity to learn, and teacher expectations for student learning.

Instructional organization refers to the manner in which the school organizes opportunities for teaching and learning. Practices such as grouping for instruction and curricular tracking, as well as features of the formal curriculum comprise the instructional organization of the school (Bossert et al., 1982; Cohen & Miller, 1980; Eberts & Stone, 1988; Glasman & Binianimov, 1981; Wellisch et al., 1978). For this study of elementary schools an admittedly limited measure of instructional organization was utilized: the degree to which students were grouped homogeneously by prior achievement level by class at given grade levels.

School outcomes in the FWL model may be thought of quite broadly. As noted earlier, relatively few studies have linked principal leadership to school outcomes of any type (Bridges, 1982; Leithwood, 1988). This study utilized measures of reading and mathematics achievement as well as measures of teacher job satisfaction. In this paper, we report relationships between model components and reading achievement.

It should be noted that the FWL model portrays linear relationships among the component variables. The model conceptualizes context variables as influences on principal leadership. Principal leadership, in turn, shapes school-level instructional climate and organization, and student learning. Although Bossert and his colleagues presented the initial conceptualization as a linear model, their later empirical work as well as subsequent discussions of the framework suggest that model components are interactive (Bossert et al., 1982; Dwyer, 1986; Rowan & Denk, 1984). The analyses presented in this paper tested both the linear model

presented above, and a more complex formulation of the FWL instructional leadership framework.

Research Design

This paper reports on the secondary analysis of data collected from 98 elementary schools in Tennessee which participated in the state's School Incentives Improvement Program (SIIP). SIIP was a four-year study (1983-86) designed to assess the impact of school-level, financial incentives on student achievement. While the project successfully implemented a true experimental design during its third year, the current study is not concerned with the manipulated variable. It uses a structural modeling technique to test the fit of the FWL model in the SIIP project schools. Data are drawn from the first through the third years of the project (Spring, 1983 through Summer, 1985).

Recruitment of Subjects

Schools were recruited for voluntary participation in the program during the spring and summer of 1982. In the spring of 1982, the Commissioner of Education held meetings across the state with superintendents of all Tennessee school systems in which he explained the purpose of the project. Afterwards, a letter went from the Commissioner to all superintendents outlining guidelines for participation in the project. Thirty-six of the 147 school superintendents in the

state returned participation request forms. These 36 systems represented a potential pool of 270 elementary schools. Calls and visits were made by SIIP staff to all superintendents who had responded positively to the initial inquiry from the Commissioner. Following these contacts, 28 superintendents representing 133 schools indicated a continued interest in participation.

Criteria for participation in the project included: location, size, and type of school system. Given the statewide nature of the project it was important to include, to the greatest extent possible, systems that represented Tennessee schools as a whole. Grade structure and testing patterns were also of primary importance. Schools with the most extensive testing programs, which also included grades 1-6 or 1-8, were identified as first choice participants. Because they did not include schools that had the 1-6 or 1-8 grade configuration, five of the remaining twenty-eight systems were dropped from consideration. A total of 110 schools in the 23 systems that remained met general project criteria. Of these, 98 ultimately agreed to participate in the project. However, eleven schools withdrew from project participation before the project's third year. Thus, 87 schools remained in the SIIP project throughout the period of this study.

Data Collection and Variables Studied

The achievement measure is a criterion referenced reading test designed by the Tennessee State Department of Education. Schools administered these tests to third and sixth grade students in both the fall and spring of academic year 1984-

85. The fall scores were considered pre-test scores; spring scores served as post-test scores. Before analyses began, gains over that school year were computed as post-test minus pre-test. These gain scores were then regressed on pre-test level. The residuals of this regression served as the final achievement gain variable (RREAD).

In the winter of 1984, school administrators in all 87 schools completed a School Information Form. This instrument collected contextual and demographic information on each school, and included several SES measures. The measure used here is the percentage of students regularly receiving free or reduced price lunches (PERCFL).

In the first and third years of the project, principals and teachers completed questionnaires. Specific areas of inquiry included in the questionnaires were:

(1) an assessment of factors associated with effective schools and the degree to which these might change during participation,

(2) organizational variables hypothesized to be related to student performance,

(3) faculty attitudes toward their own ability to improve student performance,

(4) the valence of various incentives to school personnel, and

(5) certain contextual variables potentially related to faculty effectiveness.

The Connecticut School Effectiveness Questionnaire (CSEQ) (Villanova, Gauthier, Proctor & Shoemaker, 1981) served as the source for 72 of the approximately 275 items on the questionnaire. Each year over 1,300 teachers (>90%) completed questionnaires while no more than three principals failed to validly complete and return their questionnaires.

The present inquiry employs measures of several constructs from the teacher questionnaires. Four of these are derived from the CSEQ items: principal instructional leadership (PLEAD), clear school mission (MISS), opportunity to learn -- time on task (OPPO), and parental involvement (INVOL). In addition, a measure of teachers' expectations for the academic achievement of their students (EXPT), and a single item measure of grouping practices in reading (RGRP) came from the teacher questionnaires. The expectations scale was drawn from the School Structure and Climate Study (Miskel, Bloom & McDonald, 1982) while the RGRP item was developed by SIIP staff. RGRP is a dichotomous item -- 0+ did not group within grade by achievement level, 1= did use such grouping. All variable constructs met acceptable standards of alpha reliability (see Table 1).

Before analyses began, all variables were aggregated to the school level by taking the mean of all items for each teacher on each scale and then taking the mean across teachers. In the case of grouping, RGRP, this aggregation procedure resulted in a measure defined as, "the percentage of teachers in a school who report their school as using the grouping practice." This measure contains a good deal of noise, all of which may not be white noise. In particular it is confounded

Table 1

Instrumentation for Measured Variables

VARIABLE:	Source	# Items	Alpha: Prior Studies	Alpha: Current
STUDY:				
Mission	CSEQ	10	.90	.86
Instructional Leadership	CSEQ	18	.93	.87
Opportunity to Learn	CSEQ	10	.69	.67
Teacher Expectations	CSEQ Brookover Colorado	2 4 2		.82
Parental Involvement	CSEQ	13	.85	.80

by school size since grouping may be more difficult in smaller schools. In addition, the measure may be more indicative of agreement about practice than actual practice in the school.

Principals' gender (PSEX -- 1=female, 2=male) and years of teaching experience (TEXP) were drawn from the principal questionnaire. To facilitate estimation of the structural model, TEXP was defined as total years of teaching experience divided by seven. This transformation was necessary to produce a set of variables with near equal variances. Before the transformation, TEXP's variance

was so much greater than that of other variables in the study that it threatened the accuracy of the estimation routine.

Data Analysis

The operationalized FWL model was tested using a structural modeling program, EQS (Bentler, 1989), running on an IBM compatible micro-computer. Since the model is recursive, identification was assured. Estimation proceeded in two steps.

In the first step of the analysis, the model presented in Figure 1 was estimated. As noted earlier, the FWL model posits a causal process that is severely constrained and linear. That is, the model presents variables as discrete, directly-related links in a linear causal chain. Such simplified structures are appropriate for rational theory building, but seldom fit empirical data (see Boyan, 1988; Pitner, 1988). As noted earlier, Bossert and his colleagues acknowledge that actual relationships among the variables in the FWL framework are probably interactive, rather than linear.

Empirically, causal chains usually include a number of indirect linkages. The data in the present study did not support the simple causal structure displayed in Figure 1. The chi-squared test for fit produced a value of 64.4, df=19 ($p<.001$) and the normed Bentler-Bonett fit index was 0.563. This lack of fit suggests that the simple causal structure hypothesized in the FWL model is not able to account for observed correlations.

In the second step of the data analysis, a more complex structure was estimated, again using a recursive model. This structure differed from the original model in three respects: 1) Direct paths were permitted between the antecedent variables preceding principal leadership (PLEAD) and those following PLEAD; 2) Variables within the instructional climate construct were organized into a causal structure; 3) Teaching experience (TEXP) was excluded from the analysis (see Figure 2). These structural changes were suggested by the residual covariance matrix and could be justified as a theoretically defensible model. Teaching experience (TEXP) was dropped because it did not correlate with principal leadership (PLEAD) or any variable affected by PLEAD; that is, the teaching experience variable, did not contribute to the model.

Figure 2
Estimated Equations

PLEAD	(V5)	=	-0.198*	V1	+0.386*	V3	+0.313*	V4	+1.000	E5
			0.108		0.219		0.100			
			-1.840		+1.766		+3.140			
OPPO	(V6)	=	0.699*	V8	+1.000	E6				
			0.079							
			8.501							
EXPC	(V7)	=	0.361*	V6	-0.161*	V3	+0.184*	V4	+1.000	E7
			0.066		0.080		0.036			
			5.467		-2.023		+5.090			
MISS	(V8)	=	0.354*	V5	+1.000	E8				
			0.064							
			5.531							
RGRP	(V9)	=	0.014*	V5	+1.000	E9				
			0.060							
			0.236							
RREAD	(V10)	=	1.315*	V7	+0.555*	V9	+1.000	E10		
			0.535		0.541					
			2.456		+1.025					

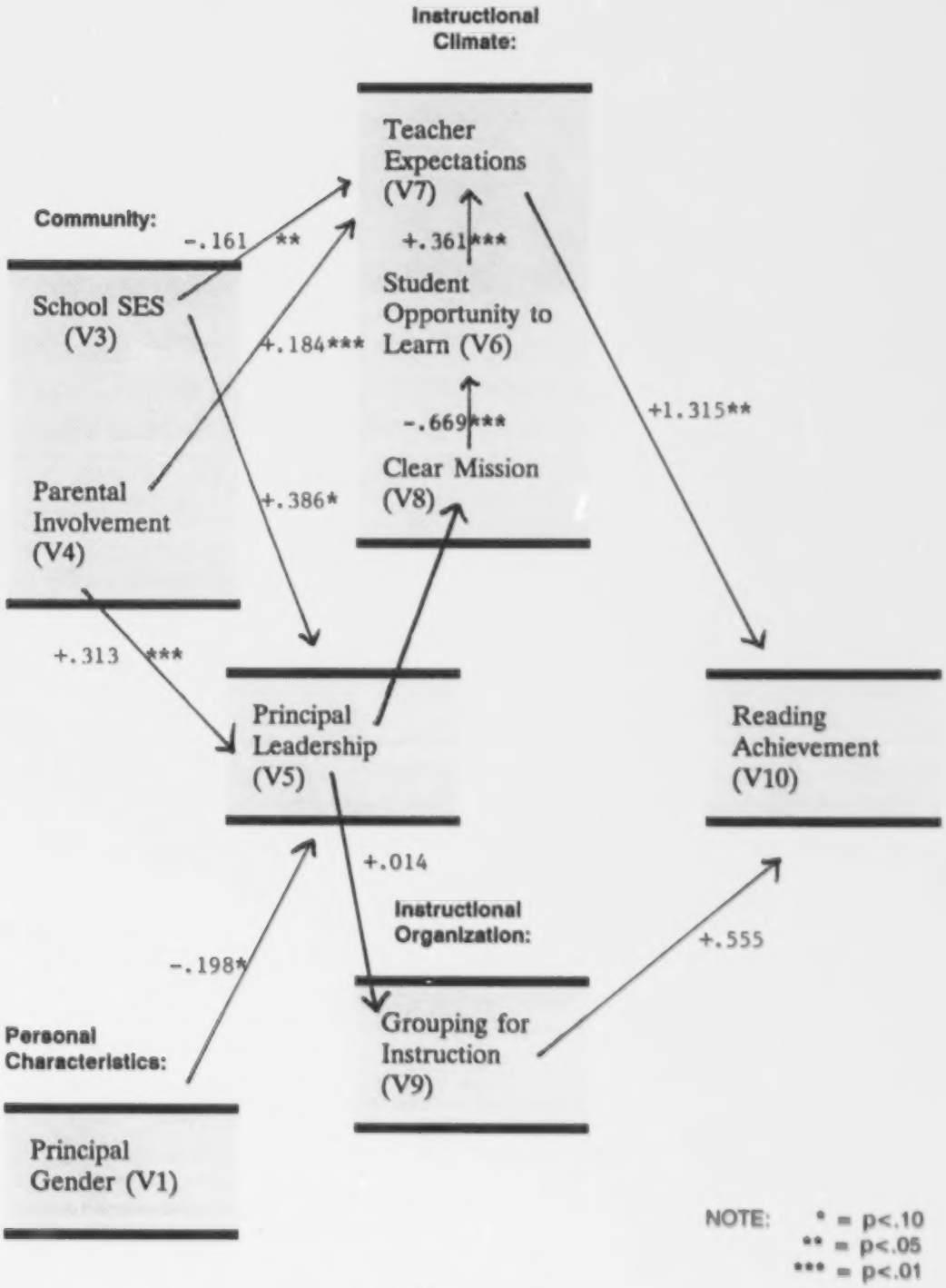
Results

The primary purpose of this study was to explore relationships among antecedents and consequences of principal instructional leadership. The study further sought to examine empirically the efficacy of the principal's instructional management model developed by researchers at the Far West Lab. The size and nature of the data set collected by researchers as part of the Tennessee School Improvement Incentives Project made it possible to address these issues in a more systematic and rigorous fashion than has typically been the case with research on principal leadership. In this section we discuss the specific results for the research questions posed in the study.

Antecedents of Principal Leadership

Several antecedents of principal leadership are included in the FWL model: community context, institutional context, the principal's personal beliefs and experiences (see figure 2). In theory, these variables shape the needs of the organization, the opportunities for and the constraints on leadership, as well as the inclinations and skills which the principal brings to the role. This secondary analysis of the SIIP data examined the impact of parental involvement, and student SES, and principal gender, on principal leadership (see figure 3). The findings of this study are consistent with those of prior studies, which suggested that each of these variables would have a measureable impact on principal leadership.

Figure 3
Final Model of Principal Instructional Leadership
and Student Achievement



Parental involvement had a positive impact ($p<.01$) on principal leadership. Principals perceived by their teachers as active instructional leaders worked in schools in which parents were more involved in the education of their children. The data do not allow us to infer the degree of interaction between these two variables. That is, we cannot determine the degree to which the principals in these elementary schools shape the involvement of parents in the educational program. This would seem to be a reasonable hypothesis, but would require a different statistical model for empirical testing. This reveals a weakness in the FWL model: the lack of attention to interaction effects among model components.

A second community-related antecedent of principal leadership included in the analysis was student socioeconomic status. Again, we found a statistically significant effect on principal leadership ($p<.05$). The direction of the effect indicates that principals in higher SES schools exercise more active instructional leadership than their counterparts in schools serving students of lower socioeconomic status.

Other researchers have reported differences in principal leadership that correlate with the socioeconomic status of the student population (Andrews et al., 1986; Hallinger & Murphy, 1985b; Miller & Sayre, 1986; Rowan & Denk, 1985; Teddlie et al., 1985). This study supports the hypothesis that principal leadership is contingent upon the socioeconomic composition of the school. Unfortunately, we are unable to illuminate the specific ways in which school SES shapes the principal's leadership behavior from the analyses conducted for this report.

It is interesting to note that both student SES, and parental involvement not only influenced principal leadership, but also had a positive effect on teacher expectations. Teachers tended to have higher expectations for student learning in schools serving students who came from homes of higher socioeconomic status and whose parents were more involved in the school program. These students also performed better on the state reading tests.

As mentioned earlier, these relationships were not predicted by the original FWL framework, but were revealed by the data when additional paths were allowed in empirical tests of the model. It is not surprising that parental expectations communicated through their personal involvement in the school and through their children's attitudes and behaviors would influence both principal and teacher behavior in the workplace. This finding is, in fact, consistent with the literatures on parent and teacher expectations, and effective schools.

The third antecedent variable tested in this study was principal gender. Prior research suggests that female principals exercise more active leadership in the areas of curriculum and instruction than do their male peers. The data support this general finding, though only at a lower level of statistical significance ($p<.10$). The data do not, however, shed light on why female principals are more involved in instructional leadership than males. Explanations for this phenomenon might include the following: Female principals spend more years in the classroom prior to becoming principals than males; Females are better able to communicate with a predominantly female teaching force at the elementary level; The incentive

systems of female principals differ from those of male principals and are more aligned with student learning; Future analyses of this data set will test these and other hypotheses regarding the impact of gender on principal leadership.

Consequences of Principal Leadership

The second research question guiding this study concerned the consequences of principal leadership. As discussed earlier, consequences included three sets of variables: student outcomes, instructional climate, and instructional organization. There was little expectation of finding a significant direct relationship between principal leadership and student achievement in reading. The first test of the FWL model found no direct effect of principal leadership on student learning in this study.

The second model estimation did, however, reveal a statistically significant ($p<.01$), positive relationship between principal leadership and the constellation of school climate variables. Specifically, the model indicates a strong relationship between principal leadership and the existence of a clear school mission. Mission, in turn, influences student opportunity to learn and teacher expectations. These instructional climate variables have a positive effect on student achievement in reading ($p<.05$). Thus, the data suggest that principals who are perceived by their teachers as strong instructional leaders shape the school-wide learning climate, and thereby influence student learning.

The other consequence of principal leadership examined in the study was

school level instructional organization. Although prior research does suggest this to be a prime area of principal attention, no significant effect was found. As noted earlier, the measure of instructional organization used in this study was weak, and may have been inadequate to the task of validly assessing this variable.

Exploration of the Far West Lab Instructional Model

The results of these analyses support the FWL model in several important respects. These are captured in the following conclusions:

* principal leadership is best understood through contingency models;
* principal leadership must be examined in terms of relevant antecedents and consequences;
* instructional leadership is exercised by shaping school level organizational structures and processes;
* the consequences of principal leadership should be conceived of as internal processes and states of the organization as well as output of the organization.

We discuss the implications of these findings as well as those that do not fit with the original FWL model below.

Leadership in the context of the school. As predicted by the FWL model, the impact of exogenous variables is critical to understanding the nature of principal leadership. The effects of principal gender, student SES, and parental involvement on principal leadership were estimated to be significant. This supports

the contention that principal leadership must be viewed as both an independent and dependent variable in research and school interventions. This has implications for both practitioners and researchers.

In terms of practice, the important role of context variables in shaping instructional leadership reinforces the admonition against overgeneralizing from limited findings about principal leadership (Murphy et al. 1985; Rowan et al., 1982). Few areas of research on principal leadership are sufficiently grounded in all schools. Cookbook approaches and standardized training programs that limit opportunities for principals to adapt research findings to their settings are likely to be counterproductive. This finding supports the incorporation of principals' craft knowledge into training programs as a means of understanding and applying research on principal leadership (Barth, 1986; Levine, Barth & Haskins, 1987; Murphy & Hallinger, 1987).

For researchers, this paper argues for the redirection of some attention to the antecedents of principal leadership. It is one thing to know that principal leadership is contingent upon selected context variables, and another to understand optimal ways to respond to those forces. Researchers in this field could begin to illuminate the nature of these relationships by conducting multi-method studies that explore leadership within the context of the school. The present study selected only three out of the numerous exogenous variables discussed earlier in this paper; others require attention as well.

Examination of principal impact on the organization. The modeling of instructional leadership within a framework of antecedents and outcomes make the FWL framework a powerful lens for viewing the role of the principal. Perhaps the most interesting finding in this study concerned the relationship between principal leadership and school-level instructional processes. The final model estimation suggests that principals influence student learning by developing a school mission that provides an instructional focus for teachers throughout the school. This creates a school environment that focuses on and facilitates student learning. The model also points to the important role played by teacher expectations as a school climate variable. The principal appears to have a key role, beyond that of parents, in creating a climate of high expectations in the school. This was borne out in the data as both principal leadership and the other instructional climate variables had positive cumulative effects on residualized reading gains.

This finding addresses the problem framed at the outset of this paper; i.e., Do principals make a difference? We did not find a statistically significant direct effect on student achievement in these schools. Effects of principal leadership on student learning are primarily indirect. This does not, in our view, diminish in any respect the importance of the impact principals have on our schools.

Ultimately, it is less important to know the degree of direct effect principals have on student learning than it is to understand the ways in which principals can shape an effective educational program. In the schools represented

in this study, principals exercise instructional leadership primarily through behaviors which shape school-level instructional climate. This finding suggests the need to turn attention away from educational productivity models that look solely at relationships between principal behavior and student achievement. It is unlikely that such an approach will yield results that are either statistically significant or useful.

Extension of the FWL model. Some departures from the FWL model are also suggested by the data analyzed in this study. The results indicate that principal leadership had a minimal effect on grade level grouping practices. This may be due to limitations cited earlier with respect to the measurement of instructional grouping. Additional analyses are necessary to examine this relationship.

Not predicted by the original model, but supported by these data, are the findings that school level SES and parental involvement had direct effects on teachers' expectations for their student's academic success. This finding is certainly consistent with earlier research on school effects and suggests a need for adaptation of the theoretical model. In addition, the data indicate that clear school mission, student opportunity to learn, and teacher expectations are separate variables with causal structures of their own.

In conclusion, this study suggests that aspects of the FWL instructional management framework is supported by empirical data. Departures from the model suggested post hoc by the data point towards generally sensible directions

for further model development. Specifically, a valid model should include interactions among variables, rather than an exclusively linear modeling of relationships between principal leadership and other school level processes. Future analyses of this data set will explore other models to determine the efficacy of competing conceptualizations of the school context, principal leadership and student learning.

Finally, we would emphasize and restate the major implication of this research. The study supports the conceptualization of principal leadership as a complex, context-dependent set of behaviors and processes. Although this is not a revolutionary conclusion, it runs counter to the assumptions that underlie the research, training and dialogue that currently pervade the educational leadership community.

This community has become preoccupied with proving that "principals make a difference." Do principals make a difference? Yes, they do. Can we measure that difference in terms of direct effects on standardized test scores? Probably not. Does that matter? Definitely not. We believe the current study suggests other useful questions that could be asked as well as places to look within the school and its environment for those interested in understanding the exercise of principal leadership within the context of the school.

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